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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------|------------------|
| 10/789,026 | 02/25/2004 | Hans-Jurgen Nolte | PO-8004/LeA 36,450 | 7133 |
| 157 7590 03/22/2007 BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205 | | | EXAMINER SERGENT, RABON A | |
| | | | ART UNIT 1711 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 03/22/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | |
|------------------------------|----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/789,026 | NOLTE ET AL. |
| | Examiner Rabon Sergeant | Art Unit 1711 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 December 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-9,24 and 26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2,4-9,24 and 26 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 6, 2006 has been entered.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 2, 4-9, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/05860 in view of Kahl et al. ('518) and Bock et al. ('419) and Burke, Jr. ('698 or '700 or '701) and Khungar et al. ('142) and Dong et al. (US 2001/0012872).

WO 01/05860 discloses the continuous production of aqueous two-component polyurethane emulsion coating compositions, wherein the polyisocyanate and polyol are initially

mixed in a mixing nozzle upstream of a jet disperser that performs the same function as applicants' homogenizer. See abstract; page 4, lines 9-19; page 5, lines 1-5; and Figure 1.

4. WO 01/05860 is silent regarding applicants' claimed recirculating or recycle feature; however, the use of recycle streams through homogenizers or repeat homogenization to improve dispersions and emulsions was known at the time of invention. This position is supported by the cumulative teachings of the secondary references. Kahl et al. disclose the homogenization of two component aqueous polyurethane coating compositions by forcing the aqueous two-component mixture through a jet disperser. Kahl et al. further disclose an embodiment wherein the stream recycles back to be introduced into the jet disperser (homogenizer) again. See Figure 5. The Burke, Jr. references disclose at column 24, the use of homogenizers in combination with recycle to improve such emulsion properties as particle size and particle size distribution. Khungar et al. disclose at column 5, lines 39+ that recirculation through a homogenizer is useful to obtain optimum homogenization of monomer mixes. Dong et al. disclose within paragraph [0015] the use of a recycle loop in combination with homogenization to ensure emulsion stability. Furthermore, both Kahl et al. (column 6, lines 49-52) and Bock et al. (column 5, line 66 through column 6, line 8) disclose the use of homogenizers in series, which is considered to be analogous to using a recycle stream. Therefore, given these cumulative teachings, the position is taken that it would have been obvious to practice the method of WO 01/05860 using a recycle stream to reintroduce the composition into the homogenizer, so as to obtain improved dispersions. Furthermore, though the references fail to disclose applicants' claimed flow rates and gear pumps, the position is taken that the selection of such conditions and equipment

amounts to the obvious selection and optimization of conventional chemical engineering practices and equipment.

5. Applicants' arguments and amendments of December 29, 2006 have been carefully considered, and the rejection has been modified accordingly. Applicants have essentially argued that the references do not disclose the advantages that are obtained by continuously mixing prior to homogenization and do not disclose the use of mixing in a mixing nozzle in combination with the use of homogenizers and a recycle stream in a continuous process. In response, it is initially noted that applicants' claims do not positively require that continuous mixing occur prior to homogenization. Rather, the claims merely require that a continuous process occurs wherein steps (a), (b), and (c) are performed, and it is noted that as far as the process is concerned, as long as there is flow through the system or feeding of reactants, it can be fairly considered to be continuous. In other words, as drafted, the "continuously" language of the claims does not necessarily apply to each step. Applicants' arguments that the references do not disclose the use of mixing in a mixing nozzle in combination with the use of homogenizers and a recycle stream in a continuous process have been carefully considered, as have applicants' criticisms of the secondary references; however, the examiner maintains that the cumulative teachings and advantages of using recycle disclosed within the secondary references would have motivated one to utilize recycle, in general, within virtually any mixing process, whether continuous or batch, so as to realize the advantages conveyed by recycle, such as improving such properties as particle size, particle size distribution, homogeneity, and emulsion stability. While applicants have essentially argued the separate teachings of the secondary references, applicants have failed to appreciate the overall or cumulative teachings within the references concerning the advantages

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of recycle; however, the position is taken that the skilled artisan would have fully appreciated these cumulative teachings and reasonably expected the use of recycle to yield an improved product and process. In summation, the evidence of obviousness outweighs the evidence of non-obviousness. Additionally, applicants' response concerning the failure of the references to teach continuous processes fails to appreciate the fact that it has been held that it is *prima facie* obvious to produce a continuous process in light of the batch process of the prior art. *In re Dilnot*, 319 F.2d 188, 138 USPQ 248 (CCPA 1963) (MPEP 2144.04(V)(E)). Lastly, applicants' arguments concerning the use of homogenizers in series and the associated pressure drop continue to not be well taken. Despite applicants' arguments, applicants have failed to establish that the recycle step as claimed is not analogous to the use of homogenizers in series. Despite applicants' arguments, as evidenced by Kahl et al. at column 2, line 63 through column 3, line 4, one of ordinary skill would be apprised of how to deal with the pressure drop.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.



RABON SERGENT
PRIMARY EXAMINER

R. Sergent
March 18, 2007